





Management Practices for Common Recognized Invasive Plant Species of Coconino County






UPDATED AUGUST 2016

Coconino County's Community Development Program and/or its employees shall not be held liable for any losses or damage resulting from use of this guideline. These weed abatement tips were gathered from several land management publications, but are not universal rules. Consult a professional who understands a plant species' life cycle for best management practices and strategies.

PLANT NAME	PHOTO	DESCRIPTION	MANAGEMENT
Cheat grass (<i>Bromus tectorum</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Annual grass - Native to Europe, southwestern Asia and northern Africa - At maturity, purple in color 	<ul style="list-style-type: none"> - Very persistent once established - Extent to which it dominates a plant community greatly determines the appropriate suppression strategy; response to management options is very site specific (USFS)
Japanese brome (<i>Bromus japonicus</i>)	 (Photo credit: SEINet)	<ul style="list-style-type: none"> - Cool-season, annual grass - Native to Eurasia - 8 to 48 inches in height - Sheaths are hairy; the blades are smooth to hairy 	<ul style="list-style-type: none"> - Mechanical treatments may increase Japanese brome populations (USFS) - The best way to prevent or minimize Japanese brome invasion is to minimize soil disturbance (USFS) - If in seed, remove seed head
Red brome (<i>Bromus rubens</i>)	 (Photo credit: SEINet)	<ul style="list-style-type: none"> - Cool-season annual grass - 4 to 28 inches tall - Inflorescence/seed head is 1 to 4 inches tall 	<ul style="list-style-type: none"> - Uproot or hoe before plant goes to seed - If mowed, mow when flowering, but before seed occurs - If in seed, remove seed head - See "Field Guide for Managing Red Brome in the Southwest" by the USDA
Smooth brome (<i>Bromus inermis</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Perennial grass - Grows from an extensive creeping root system. - Stems are hairless and erect, reaching to about 5 feet - Leaf blades are grey/blue on the upper side and green on the lower side 	<ul style="list-style-type: none"> - Well-timed mowing (flowering, but not in seed) is an effective method of control; repeated mowing is recommended - Ideal timing is when conditions are hot and moist, followed by a dry period





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Ripgut brome (<i>Bromus diandrus</i>)	 (Photo credit: CAL-IPC)	<ul style="list-style-type: none"> - Annual grass - Grows in bunches of several stems 	<ul style="list-style-type: none"> - Pull by hand or hoe before seeds are ripe; remove all bolting material - Shallow cultivation after main flush of germination can help - Replant with native grasses
Diffuse knapweed (<i>Centaurea diffusa</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Perennial - Reproduces from abundant seeds - Forms a long, fibrous tap-root and a rosette - Rosette leaves have short stalks, are alternate, deeply lobed, and up to half a foot long and 2 inches wide (USDA, 1970; Beck, 1994). 	<ul style="list-style-type: none"> - Pull at young stage; minimize soil disturbance - Biological controls are available; consult with local expert about what's appropriate for Coconino County
Leafy spurge (<i>Euphorbia esula</i>)	 (Photo credit: uwyo.org)	<ul style="list-style-type: none"> - Branching perennial - 2 to 3½ feet tall - Smooth stems - Showy yellow flower bracts 	<ul style="list-style-type: none"> - Mowing has shown to be ineffective - Can be out-competed with native plants if routinely pulled, specifically grasses - Biological controls are available; consult with local expert about what's appropriate for Coconino County
Field bindweed (<i>Convolvulus arvensis</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Perennial - Native to Eurasia - Climbing or creeping herbaceous plant - 1½ to 6½ feet high - Fragile root systems can be several feet deep 	<ul style="list-style-type: none"> - Eradication cannot happen in one season - Continually root system and top growth - Shade it out (weed cloth)
Scotch thistle (<i>Onopordum acanthium</i>)	 (Photo credit: pfaf.org)	<ul style="list-style-type: none"> - Biennial - Native to Eurasia - Can be up to 6 feet tall 	<ul style="list-style-type: none"> - Small infestations can be eradicated by uprooting - Mowing and slashing not as useful




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Russian thistle or Tumbleweed (<i>Salsola</i> <i>tragus</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Herbaceous annual - Large and bushy with rigid branches and reduced, stiff, prickly upper stem leaves at maturity (Bureau of Land Management) 	<ul style="list-style-type: none"> - For small infestations, entire plant can be pulled or dug out of the ground, bagged, and thrown away - Seedlings cut just about the young leaves seldom survive - After removal, establish native perennial grasses, or other desirable native plants
Sweet clover (<i>Melilotus</i> <i>officinalis</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Erect annual or biennial - Strong taproot - Often grows in colonies - Sweet smelling - 1½ to 9½ feet tall. 	<ul style="list-style-type: none"> - Has shallow root system; can be dug up, preferably at immature stage - Seeds can be viable for up to 30 years, so needs consistent management - Can be cut to ground level when flowering
Dalmatian toadflax (<i>Linaria dalmatica</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Short-lived, perennial - 2½ to 5 feet tall - Light green leaves and yellow snapdragon-like flowers 	<ul style="list-style-type: none"> - Hand-pulling and digging can be effective on small patches - The toadflax stem weevil, <i>Mecinus janthinus</i> is a biocontrol agent used in Washington state to control this species; consult expert to see what is appropriate for Coconino County
Kochia (<i>Kochia scoparia</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Erect, annual - Taproot system - Forms rounded bushes - Up to 7' in height 	<ul style="list-style-type: none"> - Native grasses will out-compete kochia; this can be a good for soil stabilization and if perennial grasses are desired onsite - No known biological controls are known in the U.S. - When digging, sever the root below the soil surface

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Prickly lettuce (<i>Lactuca serriola</i>)	 (Photo credit: umass.edu)	<ul style="list-style-type: none"> - Annual or biennial - 2' to 7' tall - Unbranched, except where the upper flowering stems occur - Central stem is light green or dull white, smooth, and round - Has spines on underside of leaves - Taproot 	<ul style="list-style-type: none"> - Dig out taproot, preferably at young stage to minimize soil disturbance - Handmade soap herbicide can dehydrate leaves
Common mullein (<i>Verbascum thapsus</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Herbaceous annual - When immature, forms rosette; at maturity, can be up to 7' tall - Yellow flowers - Fuzzy leaves - Can irritate skin 	<ul style="list-style-type: none"> - Root system is shallow; hand pull before it sets seed - When digging, you can sever the root below the surface, because soil disturbance invites more weeds - Fire is not an effective control - Encourage competitive, native vegetation
Poison hemlock (<i>Conium maculatum</i>)	 (Photo credit: USDA/USFS)	<ul style="list-style-type: none"> - Native to Eurasia - Toxic - Perennial - Umbel or umbrella-like white flowers - Hollow stem - Usually streaked with red or purple on lower half of stem 	<ul style="list-style-type: none"> - Cut at base before seed sets, but when bolting - Mechanically remove when young or where there are isolated populations (hoeing, digging, etc.) - Reseed area after removal - Consult expert about biological and chemical control options appropriate for your site location

References:

Bureau of Land Management
 Natural Resources Conservation Service
 Northern Arizona University—Ecological Restoration Institute
 Northern Arizona University—School of Forestry
 University of Arizona, Cooperative Extension—Coconino County
 University of California, Cooperative Extension and Agricultural Experiment Station—Weed Research and Information Center
 University of California Agriculture and Natural Resources—Statewide Integrated Pest Management Program
 U.S. Department of Agriculture



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Contact information for local invasive plant programs, educators, and abatement professionals:

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